

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Previously Presented) A method of providing for mapping between data formats, comprising:
 - accessing a first data format, said first data format includes objects, said objects include attributes;
 - accessing a relational database format that uses tables, said tables store data for said attributes;
 - classifying said attributes based on column and table in said relational database format, wherein classifications are used to translate between the data formats and each classification is translated differently;
 - creating a customized mapping catalog for said relational database format based on said classifications, said mapping catalog maps said attributes of said objects to said tables of said relational database format and identifies relationships between tables of said relational database;
 - storing the mapping catalog for use in translating subsequent data access requests;
 - receiving a request to access data for a first attribute;
 - determining a relational database from a plurality of data stores to service said request, wherein the plurality of data stores comprises the relational database and at least one LDAP directory;
 - accessing the stored mapping catalog based on determining the relational database; and
 - translating at least a portion of the request based on the stored mapping catalog.

2. (Original) A method according to claim 1, wherein:
said first data format is a logical object class format.
3. (Original) A method according to claim 1, wherein:
said first data format uses an LDAP format.
4. (Original) A method according to claim 1, wherein:
said first data format is hierarchical.
5. (Original) A method according to claim 1, wherein:
one or more of said attributes are multi-valued.
6. (Original) A method according to claim 1, wherein:
said relational database format can be any normalized relational database schema.
7. (Original) A method according to claim 1, wherein:
said relational database format pertains to an existing relational database, said
mapping catalog is customized for a schema of said existing relational database.
8. (Original) A method according to claim 1, wherein:
said mapping catalog includes a mapped column in one of said tables for said
attributes.
9. (Original) A method according to claim 1, wherein:
said mapping catalog includes, for a first attribute, an indication of a column in a
master table for linking to first data in another table, said first data is for said first attribute.
10. (Original) A method according to claim 1, wherein:

said mapping catalog includes, for a first attribute, an indication of a first column in a first table for linking to first column in a second table and an indication of a second column in said second table for linking to a first column in a third table, said first column in said third table is for said first attribute.

11. (Canceled)

12. (Original) A method according to claim 1, wherein said step of creating a customized mapping catalog comprises:

identifying an attribute that is a primary key for a master table and inserting said attribute that is said primary key with a column identification for said primary key into said mapping catalog.

13. (Original) A method according to claim 1, wherein said step of creating a customized mapping catalog comprises:

identifying a first attribute that corresponds to a first column in said master table other than a primary key and inserting said first attribute with a column identification for said first column into said mapping catalog.

14. (Original) A method according to claim 1, wherein said step of creating a customized mapping catalog comprises:

identifying a first attribute that corresponds to a first column in said master table, said first column that depends from a second column that is not a primary key column; and

inserting said first attribute, an identification of said first column, and an indication of said second column into said mapping catalog.

15. (Original) A method according to claim 1, wherein said step of creating a customized mapping catalog comprises:

identifying a first attribute that corresponds to a first column in a first table, a second column of said first table links to a primary key column in a master table; and

inserting said first attribute, an identification of said primary key column, and an indication of said second column of said first table into said mapping catalog.

16. (Original) A method according to claim 1, wherein said step of creating a customized mapping catalog comprises:

identifying a first attribute that corresponds to a first column in a first table, said first column in said first table is part of a primary key for said first table, said primary key for said first table also includes a second column of said first table; said second column of said first table links to a primary key column in a master table; and

inserting said first attribute, an identification of said first column, an indication of said second column and an indication of said primary key column into said mapping catalog.

17. (Original) A method according to claim 1, wherein said step of creating a customized mapping catalog comprises:

identifying a first attribute that corresponds to a first column in a first table, said first table includes a second column, said second column of said first table links to a first column of a second table, said second table includes a second column, said second column of said second table links to a primary key column of a master table; and

inserting said first attribute, an identification of said first column of said first table, an indication of said second column of said first table, an identification of said first column of said second table, an indication of said second column of said second table and an indication of said primary key column into said mapping catalog.

18. (Original) A method according to claim 1, wherein said step of creating a customized mapping catalog comprises:

identifying a first multi-valued attribute that corresponds to a set of primary key column values from a master table, where for each of said set of primary key column values a non-primary key column value matches a particular primary key column value; and

inserting said first attribute, an indication of a primary key column corresponding to said set of primary key column values and an indication of a non-primary key column corresponding to said non-primary key column value into said mapping catalog.

19. (Previously Presented) A method according to claim 1, wherein said step of creating a customized mapping catalog comprises:

identifying a first multi-valued attribute that corresponds to a first non-primary key column, where for each value of said first multi-valued attribute a second non-primary key column matches a particular value; and

inserting said first attribute, an indication of first non-primary key column, an indication of a column associated with said particular value and an indication of a primary key column.

20. (Previously Presented) A method of providing for mapping between data formats, comprising:

accessing a first data format, said first data format includes objects, said objects include attributes;

accessing a preexisting relational database that includes tables, said tables store data for said attributes;

classifying said attributes based on column and table in said relational database, wherein classifications are used to translate between the data formats and each classification is translated differently;

creating a customized mapping for said preexisting relational database based on said classifications, said mapping maps said attributes of said objects to said tables of said

accessed relational database format and identifies relationships between tables of said relational database;

storing the mapping catalog for use in translating subsequent data access requests;

receiving a request to access data for a first attribute;

determining a relational database from a plurality of data stores to service said request, wherein the plurality of data stores comprises the relational database and at least one LDAP directory;

accessing the stored mapping catalog based on determining the relational database; and

translating at least a portion of the request based on the stored mapping catalog.

21. (Original) A method according to claim 20, wherein:
said first data format is a hierarchical logical object class format.

22. (Original) A method according to claim 20, wherein:
said first data format uses an LDAP format.

23. (Original) A method according to claim 20, wherein:
said relational database can have any normalized relational database schema.

24. - 30. Canceled)

31. (Previously Presented) A method of using a mapping between data formats, comprising:
receiving a request to access data for a first attribute, said request identifies said data in a first data format, said first data format includes objects, said objects include one or more attributes;

determining a relational database from a plurality of data stores to service said request, wherein the plurality of data stores comprises the relational database and at least one LDAP directory;

accessing a previously stored mapping catalog customized for a relational database schema, wherein the mapping catalog maps the first attribute to the relational database schema based on a classification of the first attribute and said mapping catalog identifies a portion of a table in the relational database that stores said data for said first attribute and identifies relationships between tables of said relational database;

translating at least a portion of the request based on the mapping catalog; and

accessing said portion of said table in said relational database that stores said data for said first attribute based on said translated request.

32. (Original) A method according to claim 31, wherein:
said first format includes an LDAP format.

33. (Original) A method according to claim 31, wherein:
said first format includes a hierarchical logical object class format.

34. (Original) A method according to claim 31, wherein:
said mapping catalog includes mapped columns for said attributes, said mapped columns are in tables of said relational database.

35. (Original) A method according to claim 31, wherein:
said mapping catalog includes, for said first attribute, an indication of a column in a master table for linking to first data in another table, said first data is for said first attribute.

36. (Original) A method according to claim 31, wherein:
said mapping catalog includes, for said first attribute, an indication of a first column in a first table for linking to first column in a second table and an indication of a second

column in said second table for linking to a first column in a third table, said first column in said third table is for said first attribute.

37. (Previously Presented) One or more processor readable storage devices having processor readable code embodied on said processor readable storage devices, said processor readable code for programming one or more processors to perform a method comprising:

receiving a request to access data for a first attribute, said request identifies said data in a first data format, said first data format includes objects, said objects include one or more attributes;

determining a relational database from a plurality of data stores to service said request, wherein the plurality of data stores comprises the relational database and at least one LDAP directory;

accessing a previously stored mapping catalog customized for a relational database schema, wherein the mapping catalog maps the first attribute to the relational database schema based on a classification of the first attribute and said mapping catalog identifies a portion of a table in the relational database that stores said data for said first attribute and identifies relationships between tables of said relational database;

translating at least a portion of the request based on the mapping catalog; and

accessing said portion of said table in said relational database that stores said data for said first attribute based on said translated request

38. (Original) One or more processor readable storage devices according to claim 37, wherein:

said first format includes an LDAP format.

39. (Original) One or more processor readable storage devices according to claim 37, wherein:

said first format includes a hierarchical logical object class format.

40. (Original) One or more processor readable storage devices according to claim 37, wherein:

said mapping catalog includes mapped columns for said attributes, said mapped columns are in tables of said relational database.

41. (Original) One or more processor readable storage devices according to claim 37, wherein:

said mapping catalog includes, for said first attribute, an indication of a column in a master table for linking to first data in another table, said first data is for said first attribute.

42. (Original) One or more processor readable storage devices according to claim 37, wherein:

said mapping catalog includes, for said first attribute, an indication of a first column in a first table for linking to first column in a second table and an indication of a second column in said second table for linking to a first column in a third table, said first column in said third table is for said first attribute.

43. (Previously Presented) An apparatus that maps between data formats, comprising:

means for receiving a request to access data for a first attribute, said request identifies said data in a first data format, said first data format includes objects, said objects include one or more attributes;

means for determining a relational database from a plurality of data stores to service said request, wherein the plurality of data stores comprises the relational database and at least one LDAP directory;

means for accessing a previously stored mapping catalog customized for a relational database schema, wherein the mapping catalog maps the first attribute to the relational database schema based on a classification of the first attribute and said mapping catalog

identifies a portion of a table in the relational database that stores said data for said first attribute and identifies relationships between tables of said relational database;

means for translating at least a portion of the request based on the mapping catalog; and

means for accessing said portion of said table in said relational database that stores said data for said first attribute based on said translated request.

44. (Original) An apparatus according to claim 43, wherein:

said mapping catalog includes, for said first attribute, an indication of a first column in a first table for linking to first column in a second table and an indication of a second column in said second table for linking to a first column in a third table, said first column in said third table is for said first attribute.